Estimate of Air Quality Impacts

Gravina Access Project
Ketchikan, Alaska

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Introduction

The purpose of this document is to provide technical air quality information for preparation of an Environmental Impact Statement for the proposed Gravina Access Project. Air quality impacts of this project are expected to be generally minor, given the relatively low projected population and traffic levels of the Gravina Access Project area. To provide an assessment of potential air quality impacts of the project, the project team, in consultation with FHWA staff, selected PM_{10} for a semi-quantitative analysis, based on traffic conditions, as described below. It was judged that PM_{10} impacts would likely represent the greatest impact with respect to National Ambient Air Quality Standards (NAAQS) for the various pollutants.

Regional PM_{10} Monitoring Data

Monitoring data for particulate matter smaller than 10 microns in diameter (PM_{10}) in Juneau, Alaska, are summarized in the table below. The data were obtained from EPA's on-line AIRS database (http://www.epa.gov/air/data/index.html). These data are the nearest available to the project area and are used to provide a conservative estimate of PM_{10} levels near the Gravina Access Project area. A downward trend in concentrations can be observed since 1996, with concentrations falling to less than 20 percent of standards by 2001 at the Floyd Dryden Jr. High (Dryden) monitoring location. The monitored values for all years at both of the Juneau monitor sites are well below the NAAQS for PM_{10}.

Monitored Particulate Matter Under 10 Microns in Diameter in Juneau, Alaska

Monitor Location	Year	Daily Obs.	24-Hour Values		NAAQS ($\mu g/m^3$)	Annual Average	NAAQS ($\mu g/m^3$)
			Max.	2nd Max.			
F Dryden Jr. High/Mendenhall Loop Rd	1996	273	86	79	150	15.3	50
F Dryden Jr. High/Mendenhall Loop Rd	1997	199	70	63	150	10.7	50
F Dryden Jr. High/Mendenhall Loop Rd	1998	75	48	40	150	10.6	50
F Dryden Jr. High/Mendenhall Loop Rd	1999	113	28	27	150	6.6	50
F Dryden Jr. High/Mendenhall Loop Rd	2000	96	33	27	150	7.5	50
F Dryden Jr. High/Mendenhall Loop Rd	2001	91	28	24	150	6.1	50
3800 Portage Blvd/Trio Street	1996	358	83	78	150	19.7	50
3800 Portage Blvd/Trio Street	1997	176	94	90	150	16.0	50

Impact Assessment

To conservatively estimate the impact the Gravina Access Project will have on PM_{10} concentrations, worst-case projected Gravina Access Project traffic volumes for 2025 were compared with 2000 PM Peak Hour traffic for Mendenhall Loop Road and Mendenhall Boulevard (approximately 1/10 mile from Dryden), which were obtained from Rick Purves at Alaska DOT&PF. Alternative G3, under a high economic growth scenario, results in the highest-traffic intersection for the project, with 3,129 vehicles/hour at the Jefferson Street/South Tongass Avenue intersection. This value is approximately 2.6 times higher than the 1,201 vehicles for the Dryden peak hour in 2000. Therefore, a multiplier of 2.6 was applied to 2000 Dryden data to conservatively estimate concentrations for the worst-case project intersection, as shown below:

24-Hour:	$27 * 2.6 = 70\ \mu g/m^3$
Annual:	$7.5 * 2.6 = 19.5\ \mu g/m^3$

These conservative over-estimates are less than half of the 150 $\mu g/m^3$ 24-hour average NAAQS (which is based on the high, second-high 24-hour concentration), and less than half of the 50 $\mu g/m^3$ annual average NAAQS. Because paved roads generally contribute only a small fraction of the total impact at any location (the majority is anticipated to be caused by other sources, such as fuel combustion, and sea salt in this coastal region), an increase in traffic on a paved road will not mean a proportional increase in PM_{10} impact at a nearby monitoring site. Therefore, these results are overestimates for the Gravina Access Project area and clearly indicate the Gravina Access Project would not cause or contribute to violations of NAAQS for PM_{10}.